in the electrolyte at the temperatures T1 and T2 or else

- in a branched form.

In the linear block polymer structure, the segments with LCST are present in a number greater than 2 and are separated from each other along an essentially linear skeleton by polymer segments which do not have an LCST. The length of the latter segments may be, in the context of the invention, either relatively uniform or on the contrary variable, the latter variant being preferred.

In fact, it is particularly advantageous to choose a block polymer of the comb polymer type, with a skeleton which is essentially soluble in the electrolyte at the temperatures T1 and T2, carrying a multiplicity of side members which are essentially soluble in the electrolyte at the temperature T1 and insoluble in the electrolyte at the temperature T2. According to a preferred embodiment, the said side members with LCST are arranged along the skeleton in a random or irregular manner.

This embodiment is in general preferable to the opposite structure, which would comprise polymers consisting of a main chain consisting of segments with LCST carrying hydrophilic grafts, in so far as a polymer of this second type contracts above the LCST and thus cannot give rise to a continuous network of topological obstacles necessary for carrying out the invention.

It should be noted that the invention cannot be carried out with block polymers consisting of segments soluble in the electrolyte and of hydrophobic segments without LCST, since such polymers give rise to thermofluidification.

Particularly advantageous in the context of the present invention are separation media in which at least one of the following conditions is satisfied:

- all or some of the copolymers possess an average number of atoms, along a soluble section of segment between two consecutive points for binding of said soluble segment with segments with LCST, greater than 210;

- all or some of the copolymers possess a molecular mass greater than 30 000 or a number of atoms along the main skeleton greater than 2 000, and

- all or some of the copolymers possess a molecular mass between 50 000 and 3 000 000 or a number of atoms along the main skeleton between 2 500 and 100 000, and/or

- the average number of segments with LCST per chain is greater than or equal to 4, and is preferably between 5 and 100.

It is particularly advantageous, for carrying out the invention, to use copolymers in which the segment(s) soluble at the temperatures T1 and T2 consist of at least one polymer chosen from polyethers, polyesters such as polyglycolic acid, soluble random copolymers and homopolymers of the polyoxyalkylene type such as polyoxypropylene, polyoxybutylene, polyoxyethylene, polysaccharides, polyvinyl alcohol, polyvinylpyrrolidone, polyurethanes, polyamides, polysulphonamides, polysulphoxides, polystyrenesulphonate, substituted or unsubstituted polyacrylamide or polymethacrylamide derivatives soluble in the said electrolyte.

By way of illustration of the polyacrylamides and polymethacrylamides, there may be mentioned most

particularly polyacrylamide, polyacrylic acid, poly(N,N-dimethylacrylamide) and polyacryloylamidopropanol.

Of course, other polymers soluble in the electrolyte may be used according to the invention as soluble segments, according to the particular application and the ease of introducing them into a block polymer with the desired structure.

It is more generally advantageous for the soluble segments to have a high solvation in the electrolyte at the two temperatures T1 and T2.

Numerous types of polymer may be chosen to constitute the noncontiguous segments with LCST inside a block copolymer which can be used according to the invention, according to the electrolyte envisaged, the preferred temperatures of T1 and T2 for the implementation and the analytes to be separated. Numerous polymers with LCST are known to the person skilled in the art, in particular in aqueous medium. Reference may thus be made to the book "Polymer Handbook" Brandrupt & Immergut, Johy Wiley, New York.

According to a preferred variant of the invention, all or some of the polymeric segments with LCST are derived from one or more polymers chosen from:

- polyvinyl alkyl ethers such as polyvinyl methyl ether,
- hydroxyalkyl celluloses such as hydroxyethyl cellulose and methyl cellulose,
- homopolymers of ether oxides like polyoxyalkylenes such as polyoxypropylene and polyoxybutylene,